

**WHAT IS CLAIMED IS:**

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1. An optical information recording medium comprising information tracks extending in a circumferential direction and spaced from each other in a radial direction by lands, wherein:
- a first information track and a second information track are radially adjacent but are radially spaced from each other by a single land;
- a first phase pit encoding information for the first track is connected to the second information track and extends radially therefrom toward, but does not reach, the first information track,
- 10 said first phase pit and said first information track being separated radially by a partition wall; and
- said first phase pit said information track having substantially equal depths.

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2. The optical information recording medium as defined in claim 1,
- wherein a width  $\Delta$  of said partition wall in the radial direction and the track pitch TP satisfy the relationship:

$$\Delta / TP \geq 0.1.$$

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3. The optical information recording medium as defined in claim 1,
- wherein a width  $W_p$  of said phase pit, the length  $L_p$  of said phase pit in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$L_p/BD < 1.0, \text{ and}$$

$$0.8 \leq W_p/TP \leq 0.9.$$

4. The optical information recording medium as defined in claim 1,  
wherein a width  $W_p$  of said phase pit, a length  $L_p$  of said phase pit in the circumferential direction, the track pitch  $TP$ , and a spot diameter  $BD$  of a recording/reproducing light beam satisfy the relationship represented:

$$1.0 \leq L_p/BD, \text{ and}$$

$$0.5 \leq W_p/TP \leq 0.8.$$

5. The optical information recording medium as defined in claim 1,  
wherein a width  $W_p$  of said phase pit, a length  $L_p$  of said phase pit in the circumferential direction, the track pitch  $TP$ , and spot diameter  $BD$  of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq L_p/BD, \text{ and}$$

$$0.8 \leq W_p/TP \leq 0.9.$$

6. A method of mastering information tracks and phase pits in an optical information recording medium as defined in claims 1,  
wherein said mastering comprises exposing a master to a first exposing light beam for forming said information tracks and a second light beam for forming said phase pits;  
wherein, a spot diameter of said first exposing light beam is  $BD1$ , a spot diameter of said second exposing light beam is  $BD2$ , a distance between said first and second exposing light beams  $L$ , and the width of said wall in the radial direction is  $\Delta$ , the values of  $BD1$ ,  $BD2$ ,  $L$ , and  $\Delta$  satisfy the relationship:

$$\Delta = L - (BD1/2) + (BD2/2).$$

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7. The method of mastering as defined in claim 6,  
wherein the values of said spot diameters BD1 and BD2 of said first and second exposing  
light beams are respectively fixed to constant values; and  
wherein the distance L between the spots of said first and second exposing light beams is  
5 adjusted by changing the incident angle of at least one of said exposing light beams directed to an  
object lens by use of a light deflection element.

8. An optical information recording medium comprising:  
circumferentially extending grooves forming information tracks and phase pits forming  
circumferentially extending preformat tracks;  
10 partition walls radially separating adjacent tracks;  
wherein said grooves and phase pits are equally deep; and  
phase pits encoding preformat information for a given information track are radially  
spaced from the groove forming the given information track by partition walls.

15 9. The optical information recording medium as defined in claim 8,  
wherein a width  $\Delta$  of said partition wall in the radial direction and the track pitch TP of  
said information track, satisfy the relationship:

$$\Delta / TP \geq 0.1.$$

20 10. The optical information recording medium as defined in claim 8,  
wherein a width Wp of said phase pits, a length Lp of said phase pits in the  
circumferential direction, the track pitch TP of said information tracks, and a spot diameter BD of

a recording/reproducing light beam satisfy the relationship:

$$L_p/BD < 1.0, \text{ and}$$

$$0.8 \leq WP/TP \leq 0.9.$$

11. The optical information recording medium as defined in claim 8,

wherein a width  $W_p$  of said phase pits means, a length  $L_p$  of said phase pits in the circumferential direction, the track pitch  $TP$  of said information tracks, and a spot diameter  $BD$  of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq L_p/BD, \text{ and}$$

$$0.5 \leq WP/TP \leq 0.8.$$

12. The optical information recording medium as defined in claim 8,

wherein width  $W_p$  of said phase pits, a length  $L_p$  of said phase pits in the circumferential direction of said information tracks, the track pitch  $TP$  of said information tracks, and a spot diameter  $BD$  of a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq L_p/BD, \text{ and}$$

$$0.8 \leq WP/TP \leq 0.9.$$

13. An optical information recording medium comprising:

circumferentially extending grooves forming information recording tracks, and phase pits encoding preformat information for said tracks;

wherein phase pits encoding preformat information for a given track are radially spaced from that track and separated therefrom by a partition wall be are connected to an adjacent track; and

wherein said grooves and phase pits are equally deep.

14. The optical information recording medium as defined in claim 13,

wherein a width  $\Delta$  of said partition wall in the radial direction and the track pitch TP

satisfy the relationship:

$$\Delta / TP \geq 0.1.$$

15. The optical information recording medium as defined in claim 13,

wherein a width  $W_p$  of said phase pits, a length  $L_p$  of said phase pits in the circumferential direction, the track pitch TP, and a spot diameter BD of a recording/reproducing light beam satisfy the relationship:

$$L_p/BD < 1.0, \text{ and}$$

$$0.8 \leq W_p/TP \leq 0.9.$$

16. The optical information recording medium as defined in claim 13,

wherein a width  $W_p$  of said phase pits, a length  $L_p$  of said phase pits in the circumferential direction, the track pitch TP, and a spot diameter BD a recording/reproducing light beam satisfy the relationship:

$$1.0 \leq L_p/BD, \text{ and}$$

$$0.5 \leq W_p/TP \leq 0.8.$$

17. The optical information recording medium as defined in claim 13,

wherein a width  $W_p$  of said phase pits, a length  $L_p$  of said phase pits in the circumferential direction, the track pitch  $TP$ , and a spot diameter  $BD$  of a recording/reproducing light beam satisfy the relationship:

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$$1.0 \leq L_p/BD, \text{ and}$$

$$0.8 \leq \text{WP/TP} \leq 0.9.$$

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